

REMARKS

Claims 1-7 were pending at the time of this office action. Claims 1-7 have been amended. Thus, claims 1-7 are present for examination. Re-examination and reconsideration of the application, in view of the following remarks, are requested.

The examiner has requested that applicant make a correction to Figure 1. Applicant is submitting a proposed correction to Figure 1 with this Amendment.

Claims 1-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yonemitsu, U.S. Patent No. 5,485,279.

The examiner's rejection is respectfully traversed.

Claim 1 has been amended. Amended claim 1 recites a method for displaying frames of a dynamic image using single field data from an interlaced encoded image data having a two-field structure. The method recited in amended claim 1 comprises, among other features, selecting one of two fields that form each frame, adding zero values after the DCT coefficients of each field block in the selected field, performing an inverse DCT of the compensated DCT coefficients to obtain image data corresponding to a frame block, and displaying the image data. Thus, a frame of image data is reproduced using only one of the two fields that form each frame.

Claim 1, as amended, recites features that are neither disclosed nor suggested in the prior art of record. Yonemitsu discloses reproducing an image having a reduced resolution by processing a coded bit stream of normal resolution. Yonemitsu does not disclose, however, reproducing a frame of image data using only one of the two fields that form a frame. The examiner suggests that Yonemitsu discloses selecting one of two fields forming each frame at figure 9a, element 52. However, Yonemitsu's figure 9a is a block diagram of an encoder. [Yonemitsu, col. 16, Ins. 23-24.] Applicant's claim 1 does not recite encoding image data. Claim 1 recites a method for displaying frames of encoded image data. Thus, even if Yonemitsu's element 52 did select one of two fields that form a frame, it would do so in an encoding process and not in a decoding process.

Moreover, Yonemitsu's element 52 does not operate to select one of two fields that form a frame in any event. Indeed, the element 52 provides an output signal that

includes data from both fields that form the frame, as is illustrated in figure 10(B). [Yonemitsu, col. 5, Ins. 10-15, see also fig. 10(B).]

In addition, Yonemitsu does not disclose taking the output from element 52 and adding zero values to it, as is recited by claim 1. The examiner has combined features of Yonemitsu's encoder (figure 9(B), element 52) with Yonemitsu's decoder (figure 15, elements 72 and 92). Thus, Yonemitsu does not disclose performing the steps recited in amended claim 1, which steps include decoding and displaying encoded image data. Thus, because Yonemitsu does not disclose each of the features recited in amended claim 1, the examiner's rejection of claim 1 is respectfully traversed.

The examiner correctly notes that Yonemitsu's element 92 does not perform adding zero values after the DCT coefficients of each field block as recited in amended claim 1. The examiner states, however, that this step would have been obvious to get the larger size blocks required for a desired display output format. However, this step could not have been obvious in Yonemitsu because Yonemitsu does not disclose the preceding step of selecting a single field to use in this step. Applicant teaches adding zero values so that a frame of image data can be reproduced using only one of two frames that form the frame. Because Yonemitsu does reproduce a frame using one of two fields, Yonemitsu would not be motivated to add the zero values recited by claim 1.

The examiner's rejection of claim 3 also is respectfully traversed for the reasons discussed above. Further, amended claim 3 recites, among other features, alternatively selecting one of an odd field and an even field that form each frame. This feature is neither disclosed nor suggested in the prior art of record. Thus, applicant believes that claim 3 is in condition for allowance.

Claims 2 and 4 are dependent on claims 1 and 3, respectively. Thus, the examiner's rejection of claims 2 and 4 is likewise traversed.

Claim 5 recites, among other features, an apparatus for displaying frames of a dynamic image including a selecting device that selects one of two fields forming each picture frame. Claim 5 further recites a DCT coefficient addition device that adds zero values after the DCT coefficients of each field block in the selected field. As discussed above, these features are neither disclosed nor suggested in the prior art of record. Thus, the examiner's rejection of claim 5 is respectfully traversed. Claims 6 and 7 are

dependent on claim 5. Thus, the examiner's rejection of claims 6 and 7 is likewise traversed.

In view of the foregoing, it is respectfully submitted that the present application is in condition for allowance. Re-examination and reconsideration of the application, as amended, and allowance of the claims at an early date is respectfully requested.

Respectfully submitted,

By 

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicant: Toru YAMADA

Title: FRAME DISPLAY METHOD AND
APPARATUS USING SINGLE
FIELD DATA

Appl. No.: 09/325,705

Filing Date: 06/04/99

Examiner: Allen C. Wong

Art Unit: 2613

MARKED-UP COPY OF AMENDMENT AND REQUEST FOR RECONSIDERATION
UNDER 37 C.F.R. § 1.111

Commissioner for Patents
Box Non-Fee Amendment
Washington, D.C. 20231

Sir:

In reply to the Office Action dated May 3, 2002, please amend the above-identified application as follows:

In the Claims:

1. (Amended) A method for displaying picture-frames of a dynamic image using single field data infrom an interlaced encoded image data having a two-field structure, comprising the steps of:

 performing inverse quantization of the interlaced encoded image data to obtain DCT (Discrete Cosine Transform) coefficients of each of a plurality of field blocks that comprise a frame;

 selecting one of two fields forming each picture framethat form the frame, each field consisting of some of the plurality of field blocks;

 adding zero values after the DCT coefficients of each ef-field block in the selected field in order to obtain compensated DCT coefficients having a data size corresponding to onea frame block;

performing inverse DCT of the compensated DCT coefficients to obtain image data corresponding to a frame block; and

performing inverse DCT of the compensated DCT coefficients to obtain displaying the image data.

2. (Amended) The method for displaying picture frames according to claim 1, further comprising the ~~stepsteps~~ of:

determining identifying frames for which to perform a motion compensative prediction; and

performing the motion compensative prediction ~~efon~~ on the image data corresponding to the frames ~~to be compensated~~ identified in the identifying step before displaying the image data in the displaying step.

3. (Amended) A method for displaying picture frames of a dynamic image using MPEG-2 (Moving Picture Experts Group 2) encoded image data obtained from NTSC (National Television System Committee) television signals, comprising the steps of:

performing inverse quantization of the ~~interlaced~~MPEG-2 encoded image data to obtain DCT (discrete cosine transform) coefficients for each of a plurality of field blocks;

alternatively selecting one of an odd field and an even fields forming field that form each picture frame at 1/60 second intervals, each of the odd field and the even field consisting of some of the plurality of blocks;

adding zero values after the DCT coefficients of each of the plurality of field blocks in the selected field in order to obtain compensated DCT coefficients having a data size corresponding to ~~one~~ a frame block; and

performing inverse DCT of the compensated DCT coefficients to obtain pixel data for ~~each~~the frame block; and

displaying the pixel data.

4. (Amended) The method for displaying picture frames of a dynamic image according to claim 3, further comprising the ~~stepsteps~~ of:

~~determining~~identifying frames for which to perform ~~a~~the motion compensative prediction; and

performing the motion compensative prediction of the ~~image~~pixel data corresponding to the frames ~~to be compensated~~identified in the identifying step before displaying the pixel data in the displaying step.

5. (Amended) An apparatus for displaying picture-frames ~~of a dynamic image~~ using single field data ~~in~~from interlaced encoded image data having a two-field structure, comprising:

a compressed data buffer for loading and temporarily storing at least a part of the encoded image data ~~representing a single frame~~;

an inverse quantizer for obtaining DCT (Discrete Cosine Transform) coefficients for each ~~of a plurality of~~ field ~~block~~blocks from the encoded image data stored in the compressed data buffer;

a selecting device ~~for~~that ~~selecting~~selects one of two fields forming each picture frame, ~~each of the two fields consisting of some of the plurality of field blocks~~;

a DCT coefficient addition device ~~for~~that ~~adding~~adds zero values after the DCT coefficients of each field block in the selected field in order to obtain compensated DCT coefficients having a data length corresponding to ~~one~~a frame block;

an inverse DCT processing device ~~for~~that ~~performing~~performs inverse DCT of the compensated DCT coefficients to obtain pixel data for each frame block; and

a frame data buffer ~~for~~temporally storing~~that~~ temporally stores the pixel data of the frame blocks; and

a display device that displays the pixel data.

6. (Amended) The apparatus for displaying picture-frames according to claim 5, further comprising:

~~an~~ a ~~identifying~~ device ~~for~~that ~~determining~~identifies frames for which to perform motion compensative prediction, and

~~a~~ device ~~for~~that ~~performing~~performs the motion compensative prediction of the pixel data corresponding to the frames ~~to be compensated~~identified by the identifying device before the display device displays the pixel data.

7. (Amended) The apparatus for displaying picture-frames according to claim 5, further comprising a storage device ~~for that stores~~ the encoded image data to be displayed and a display device for displaying the pixel data.